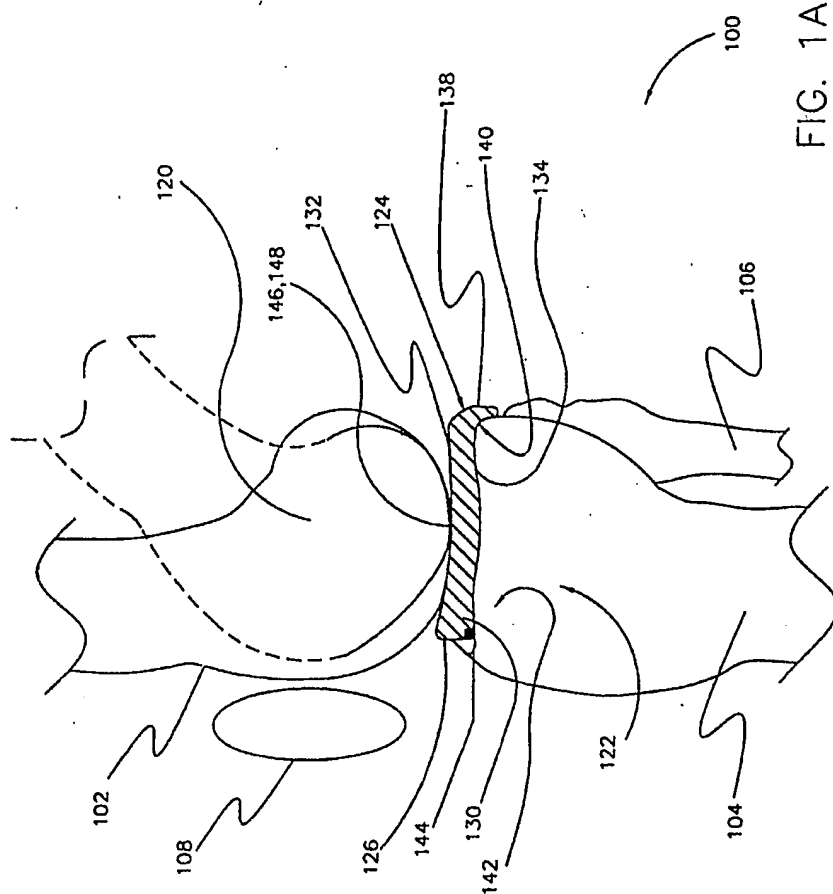
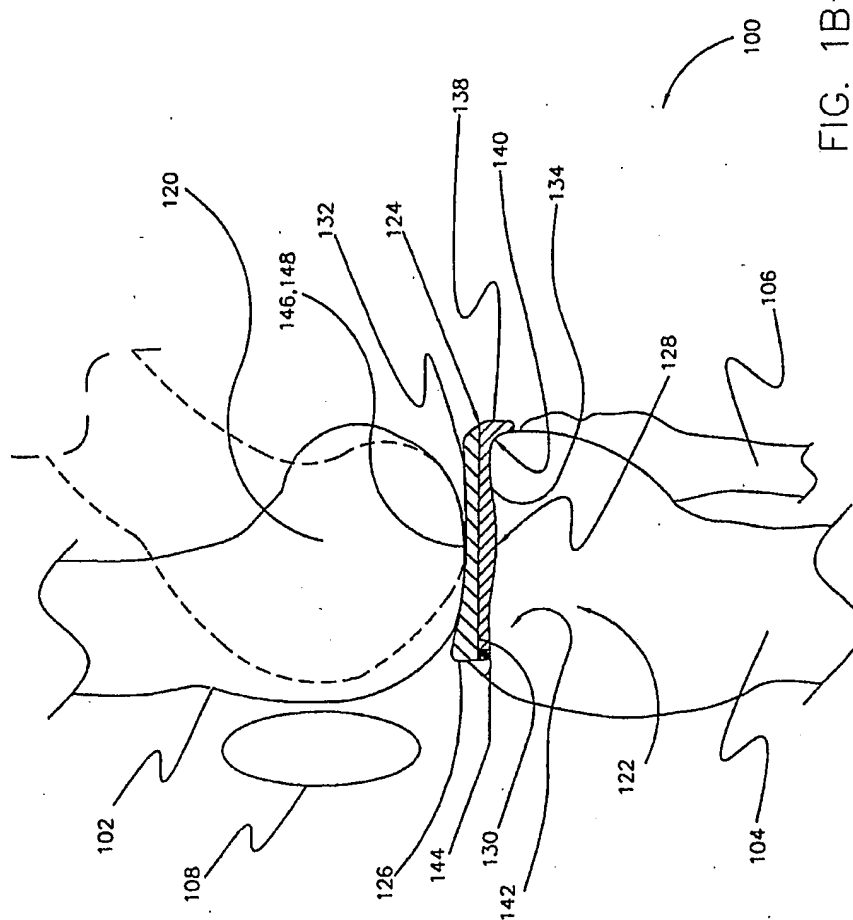


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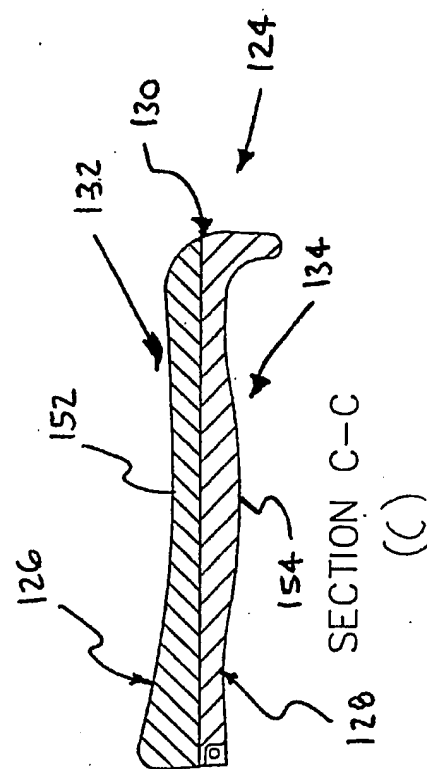
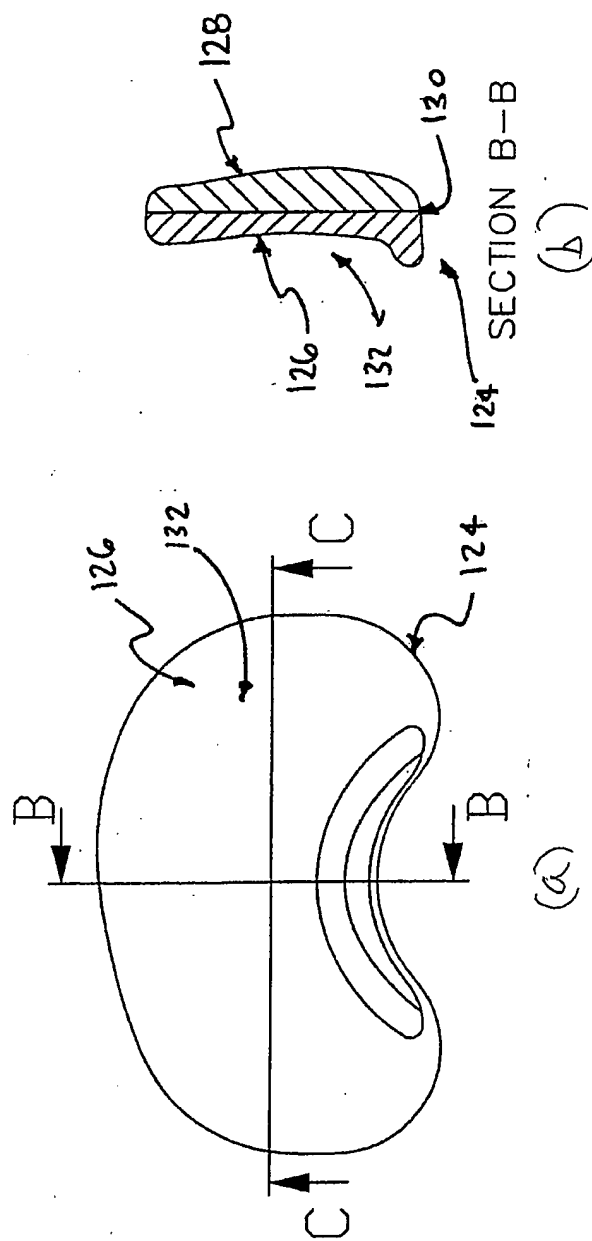


FIG. 2

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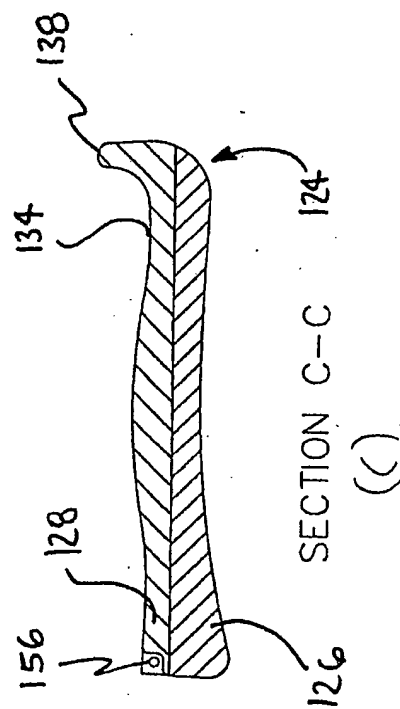
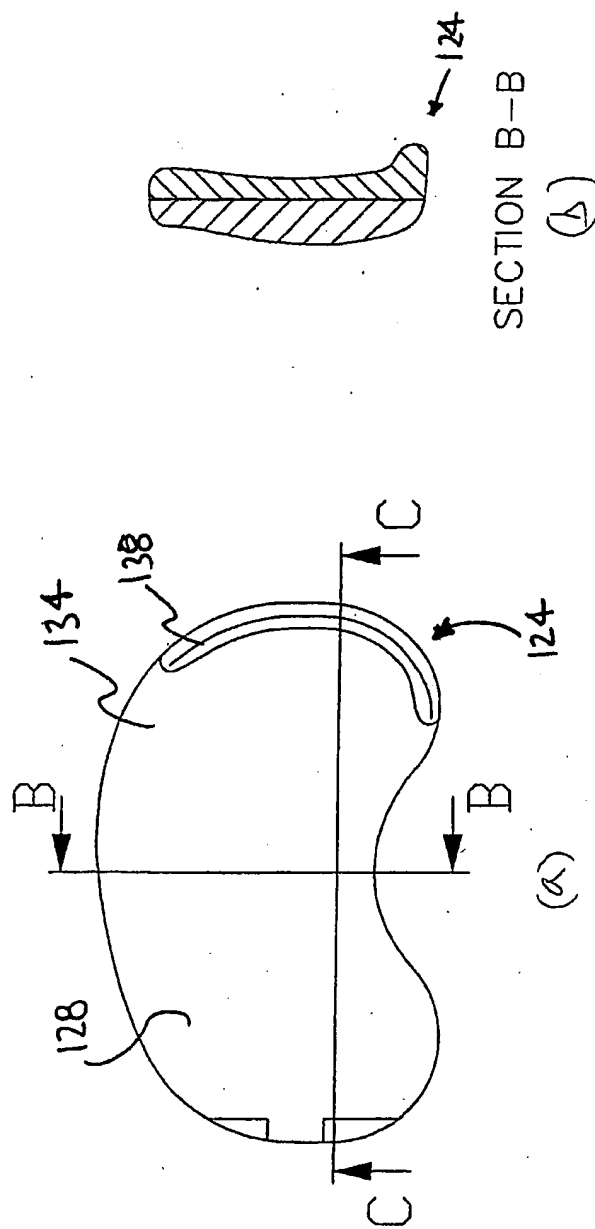


FIG. 3

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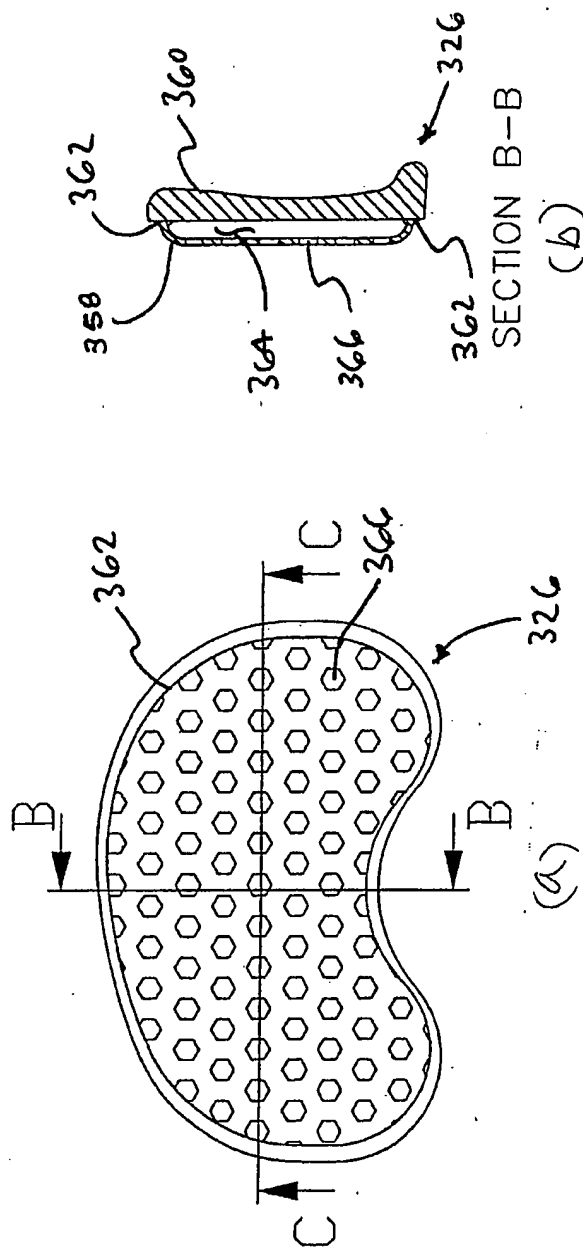
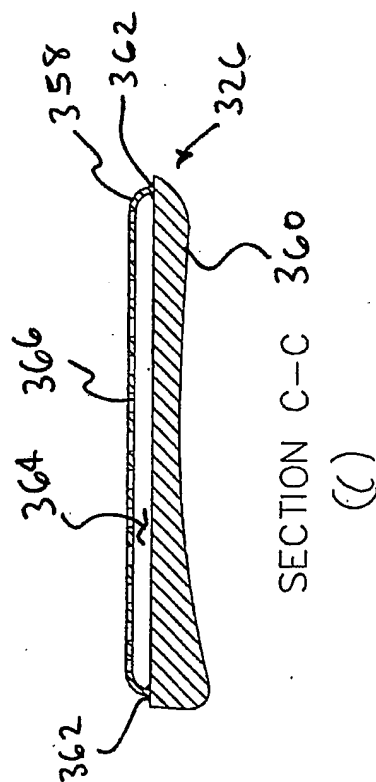


FIG. 4



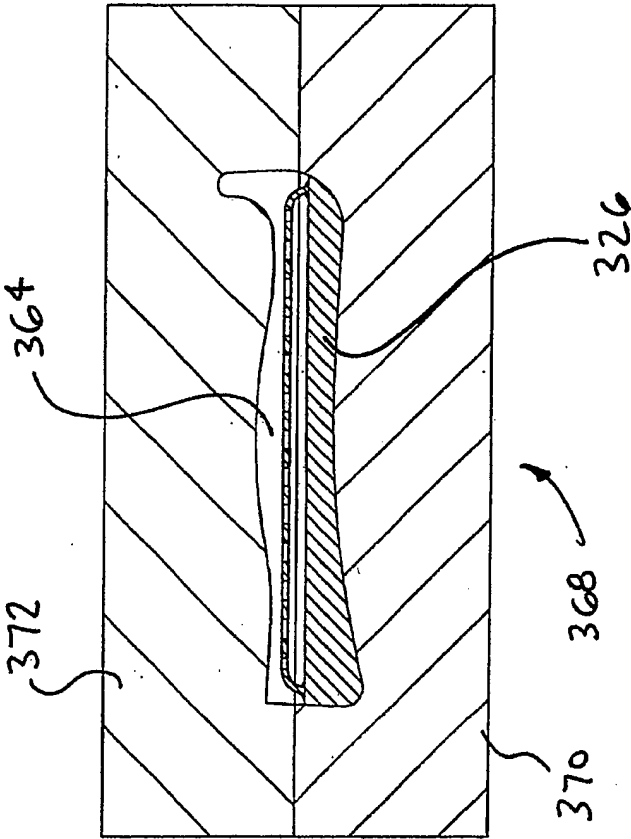
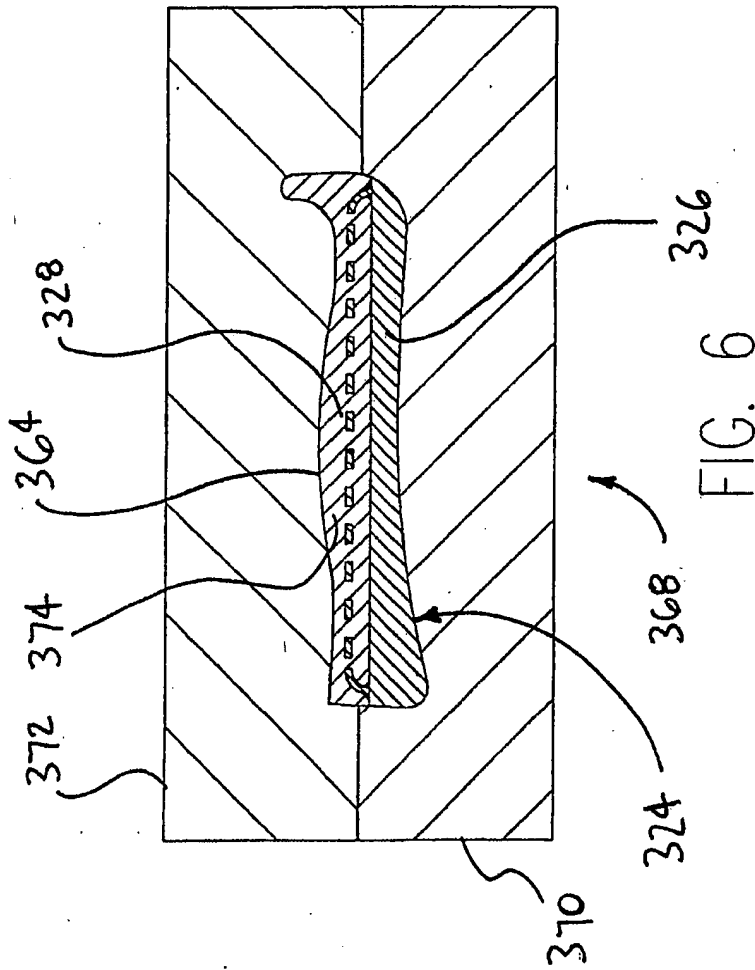
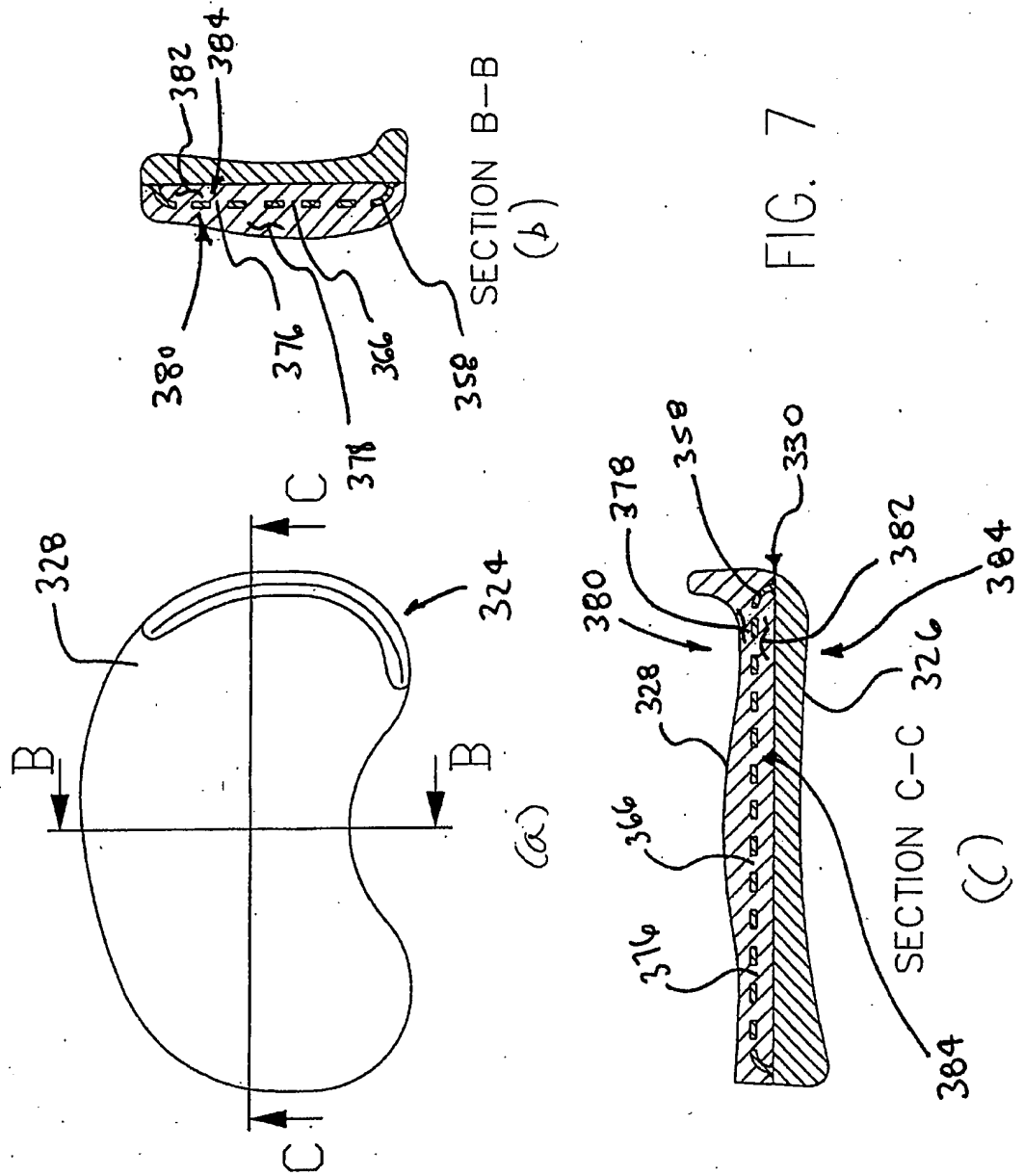


FIG. 5



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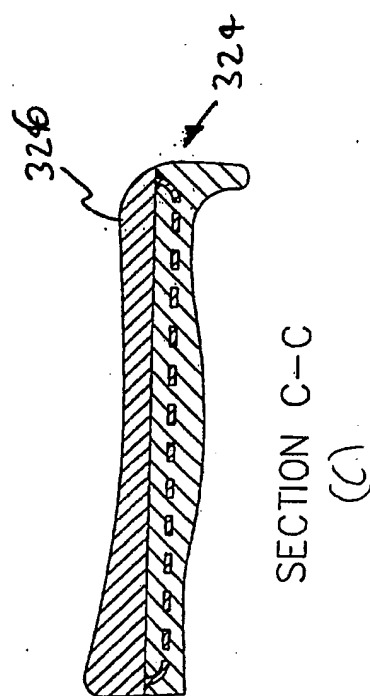
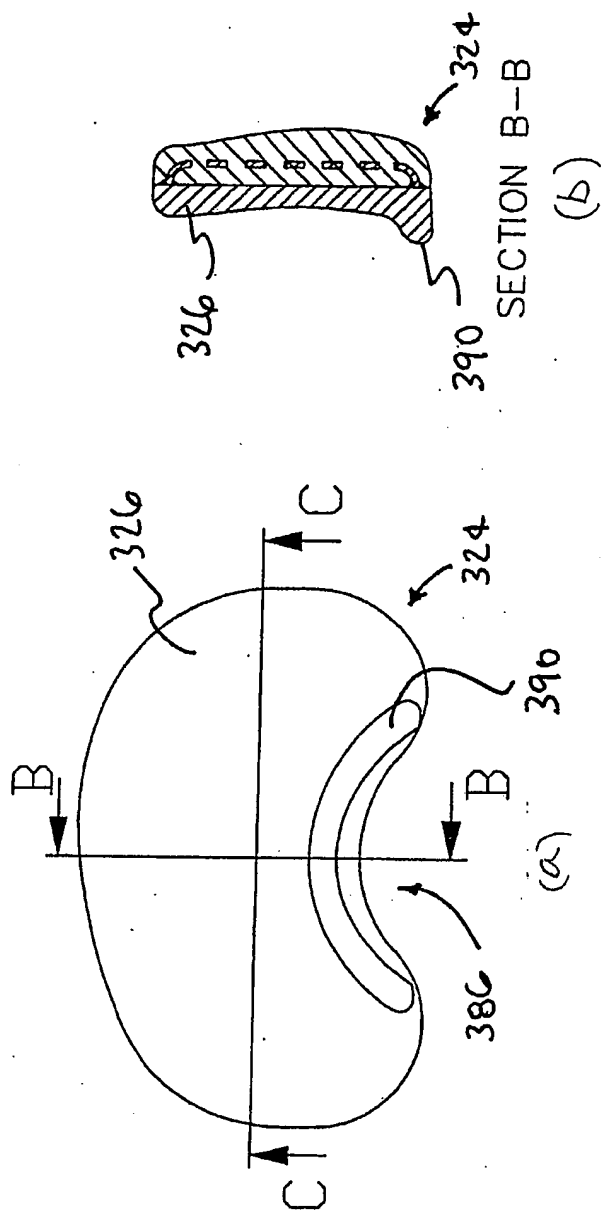


FIG. 8

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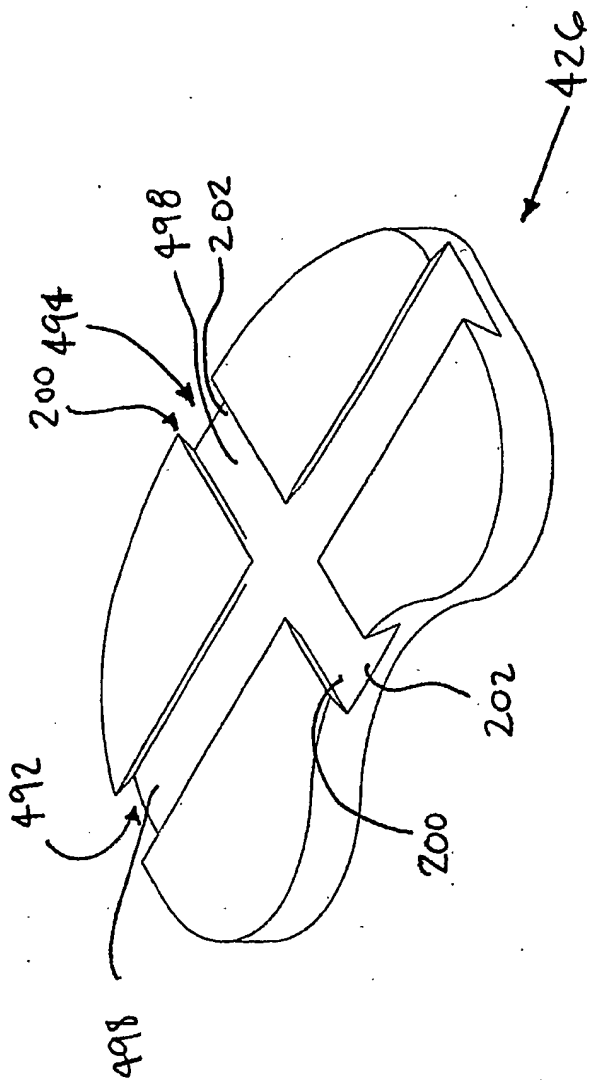


FIG. 9

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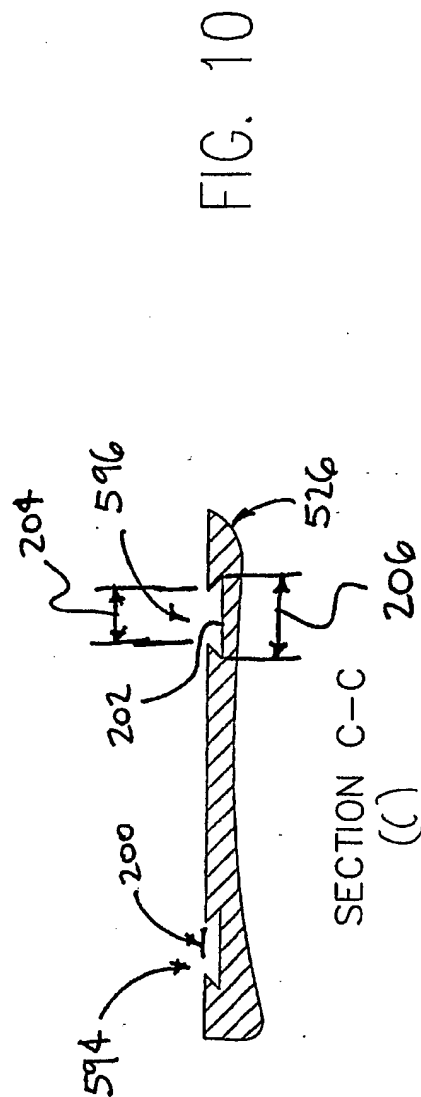
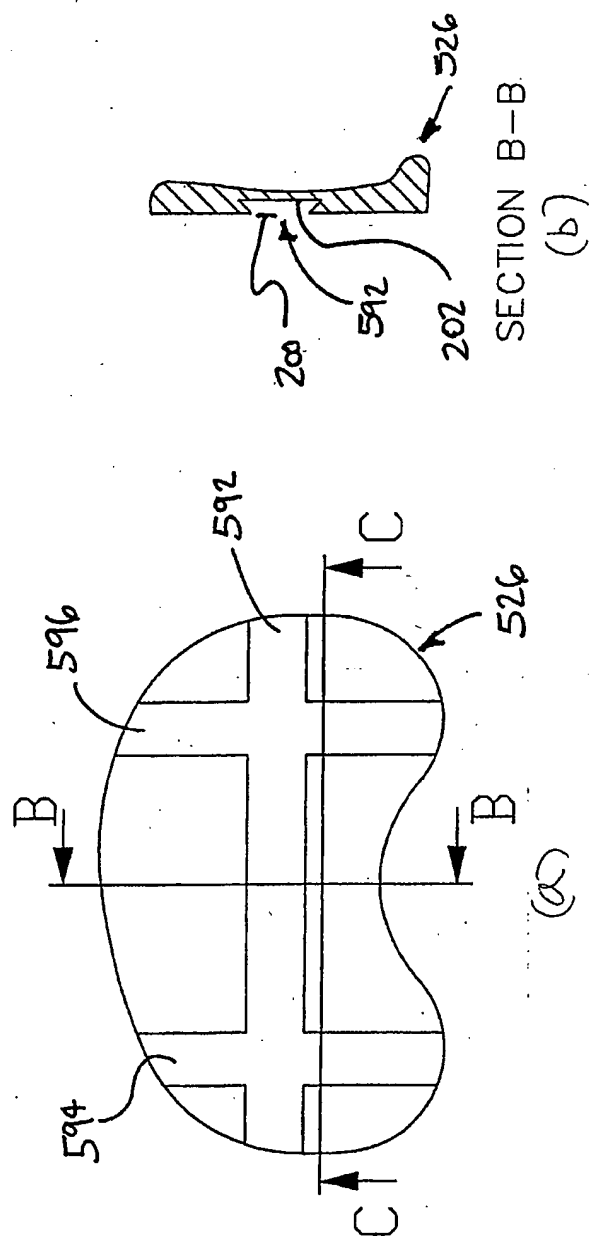


FIG. 10

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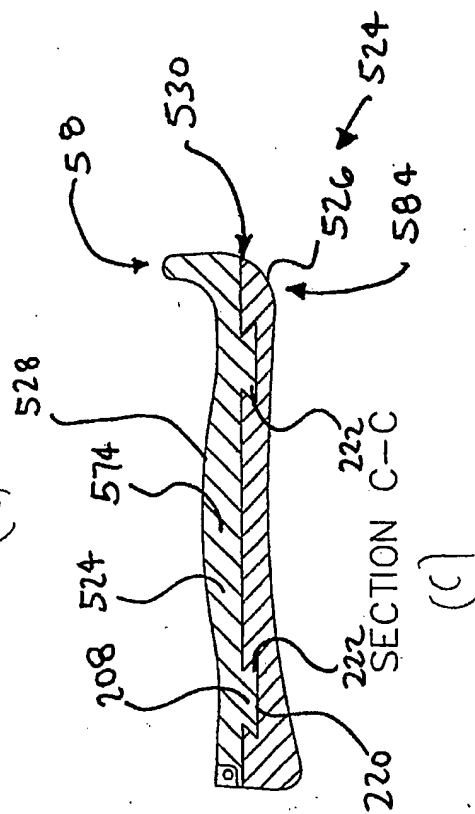
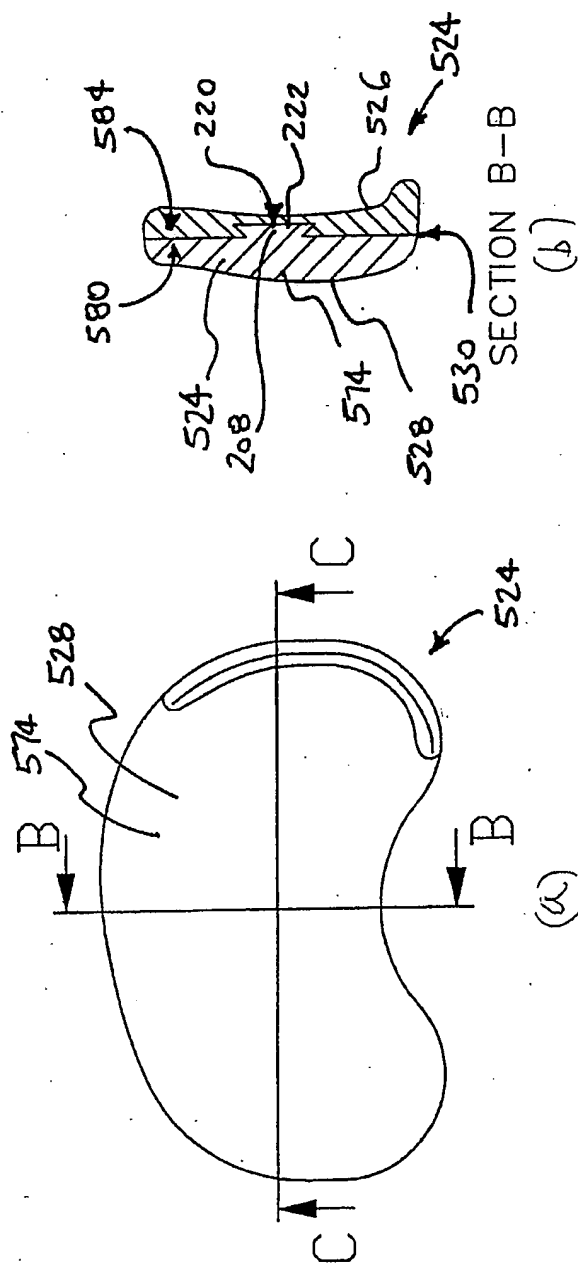


FIG. 11

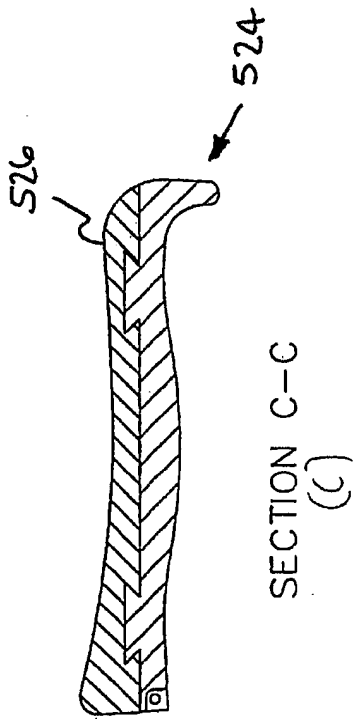
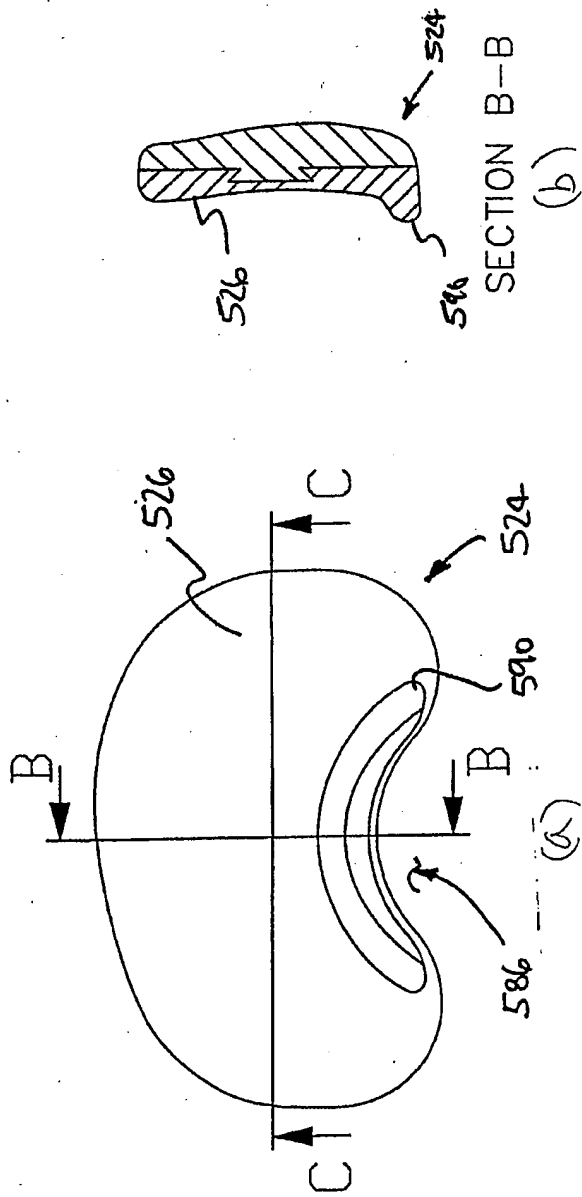


FIG. 12

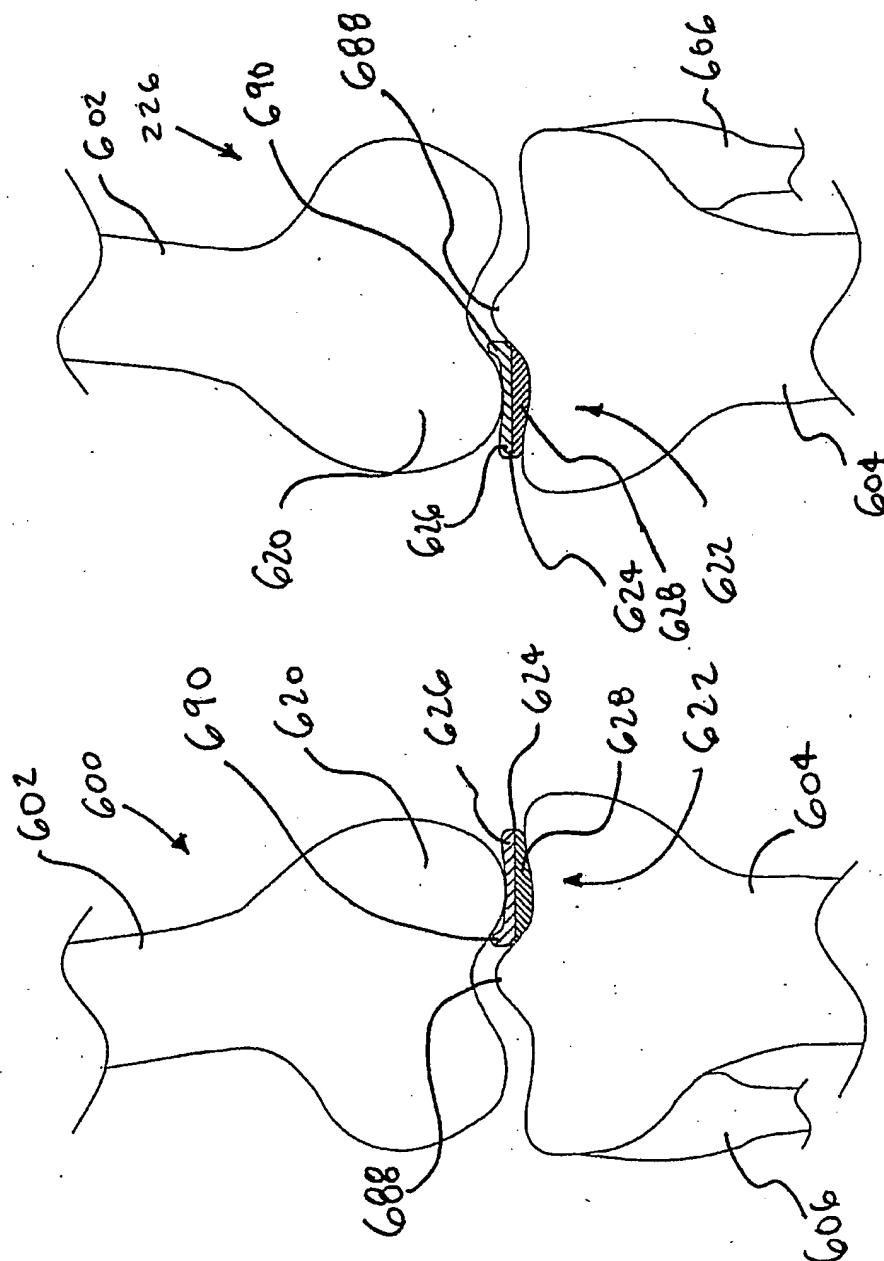


FIG. 13

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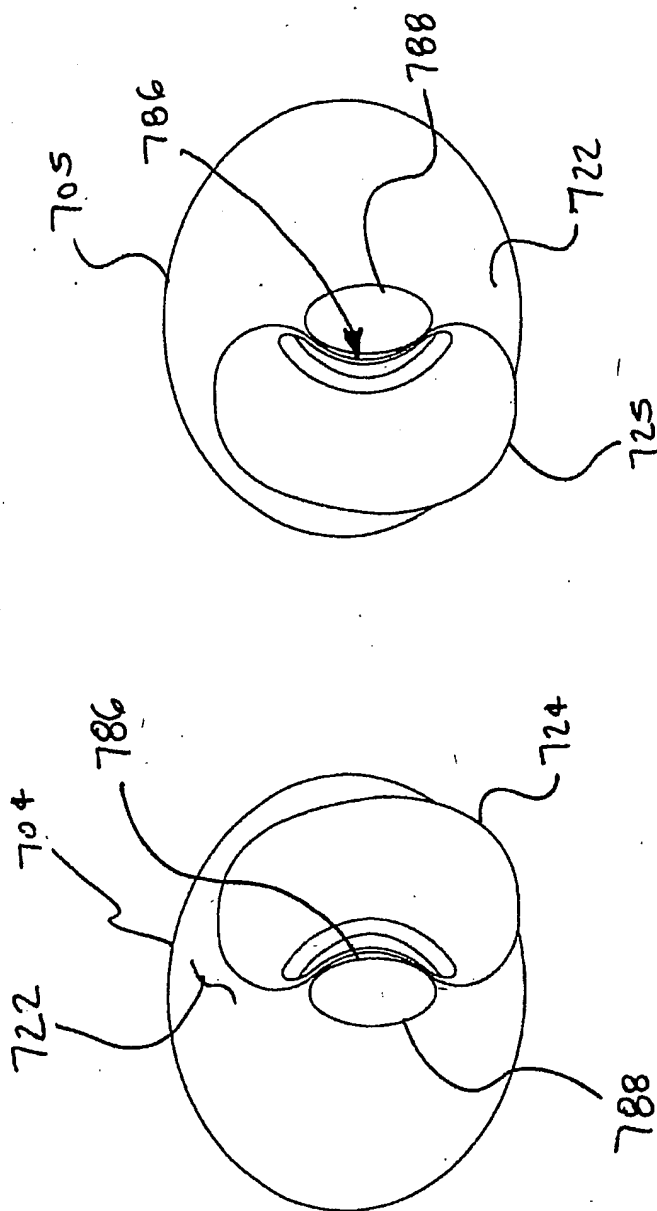
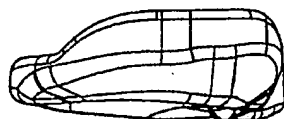


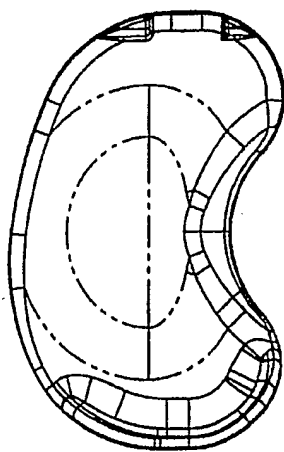
FIG. 14

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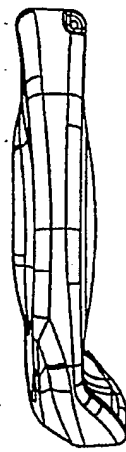
I



15(B)



15(A)



15(C)

FIG. 15

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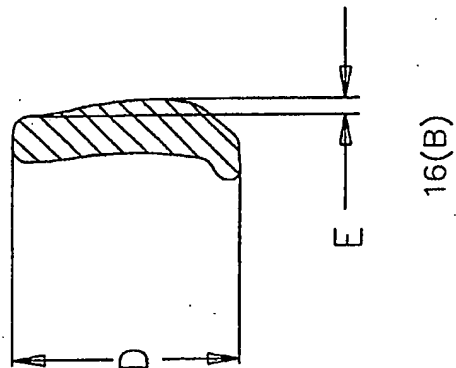
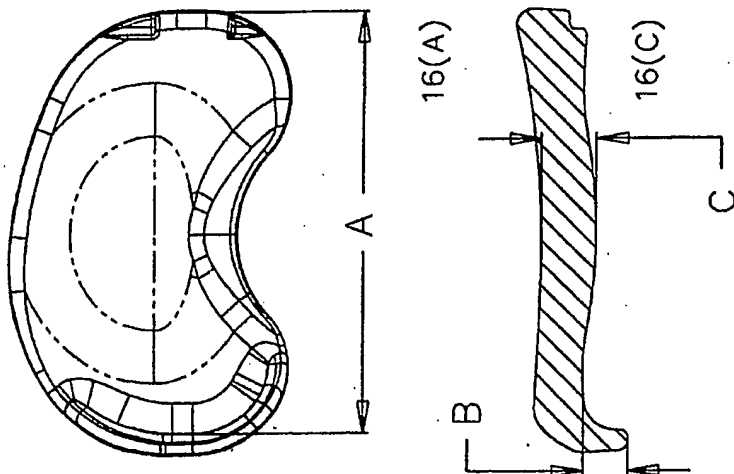


FIG. 16



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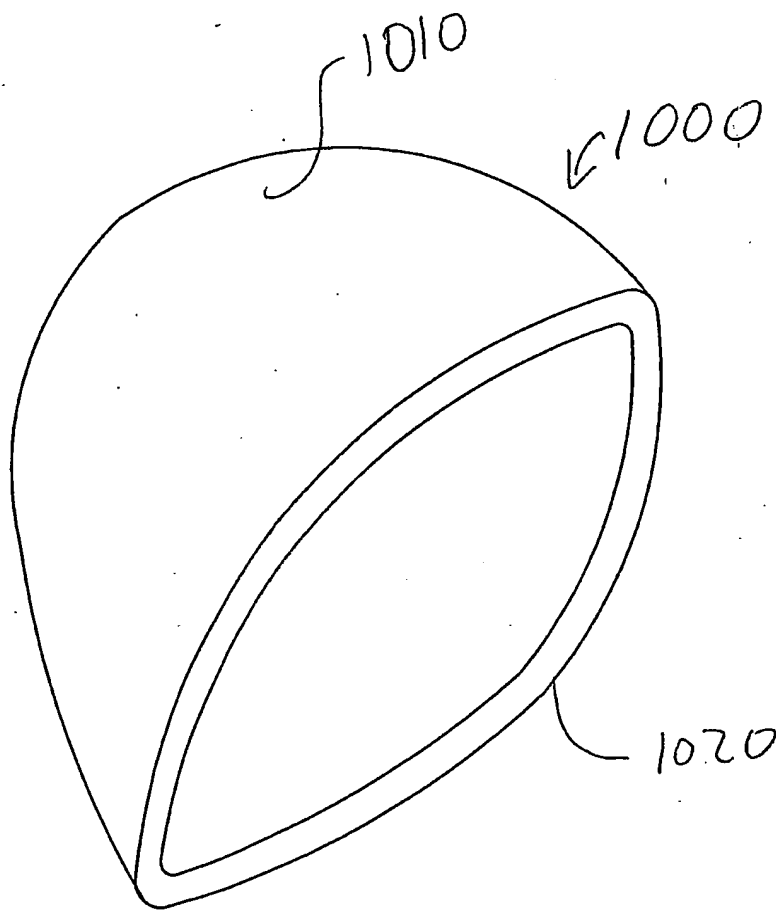


Fig. 17

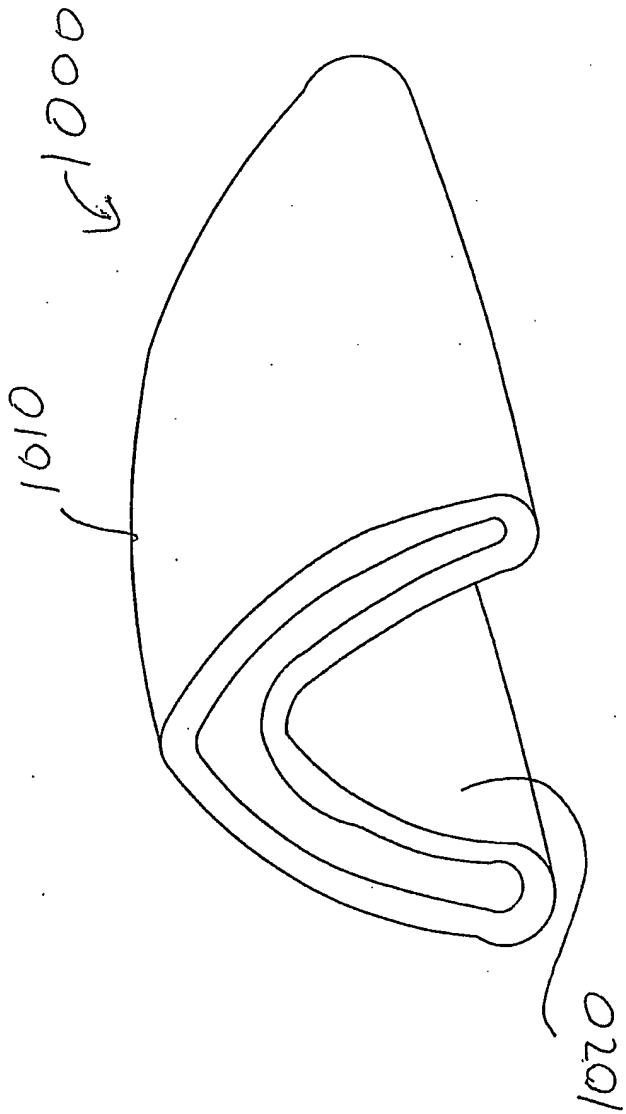
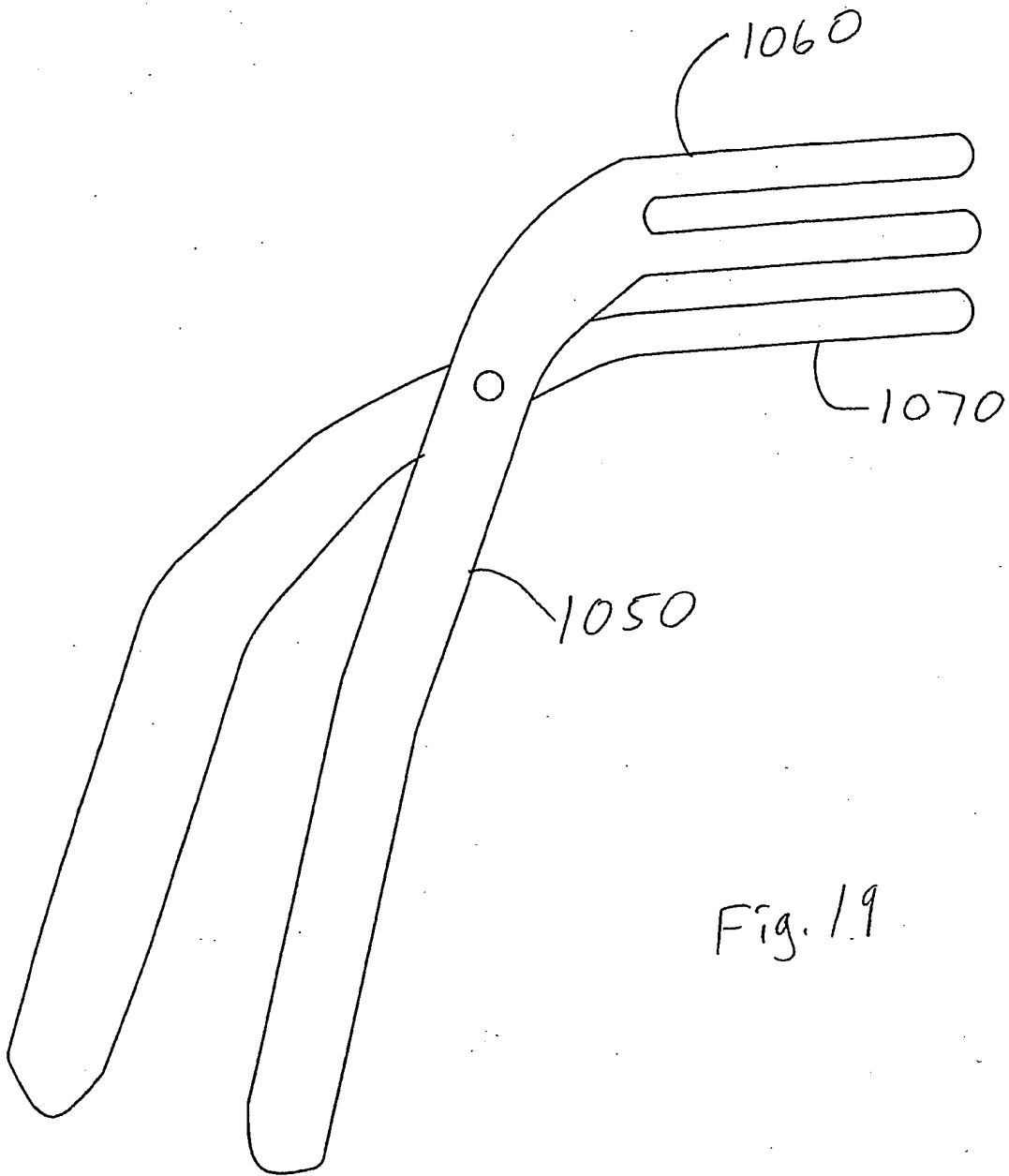
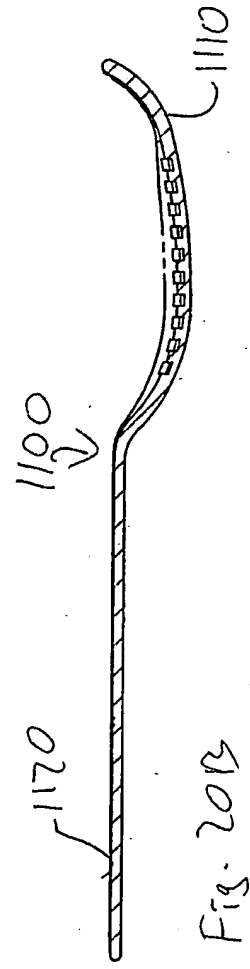
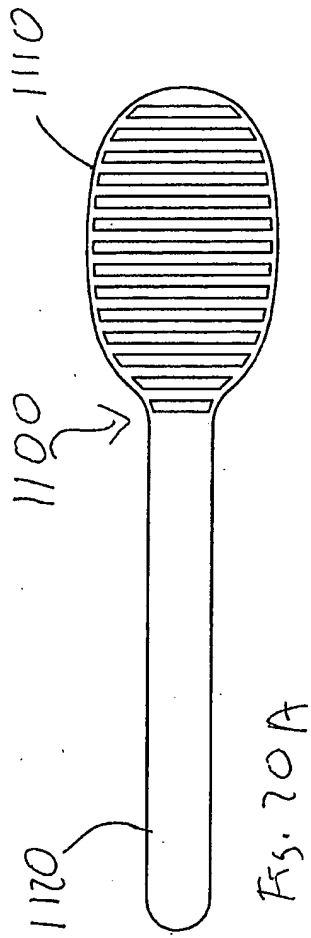


Fig. 18

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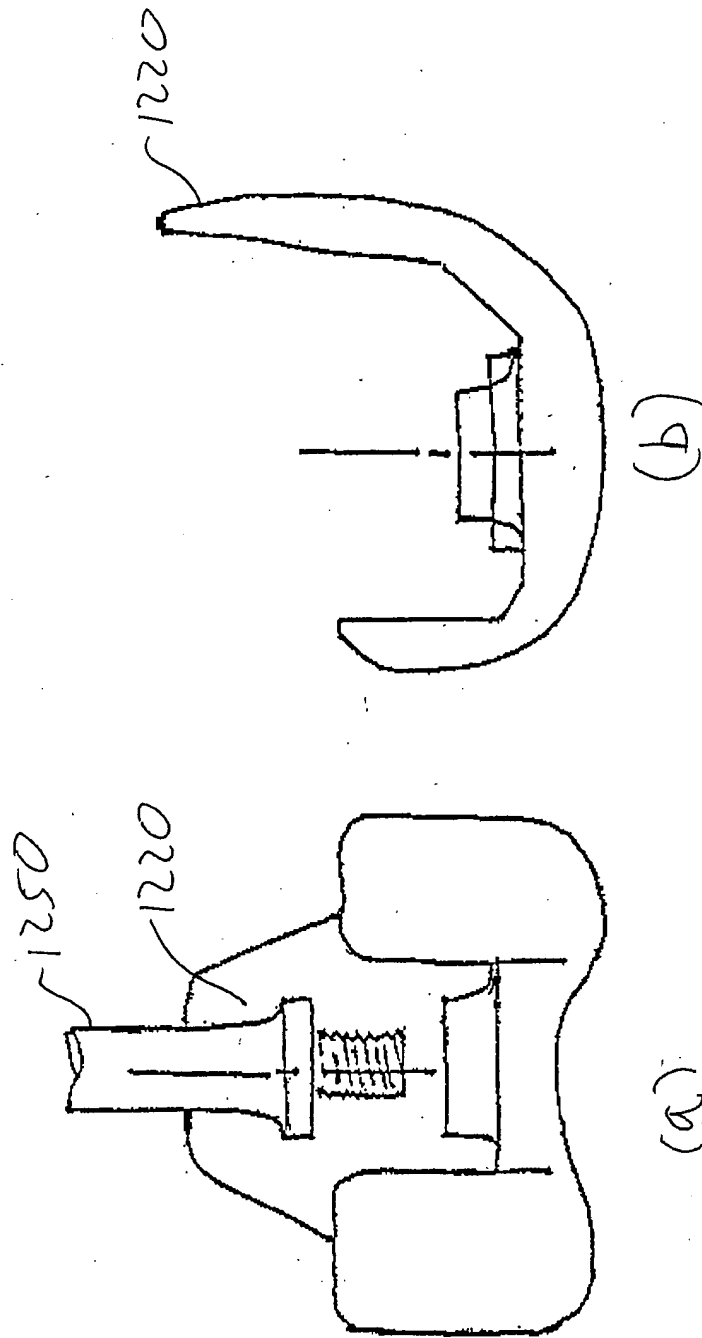


Fig. 21

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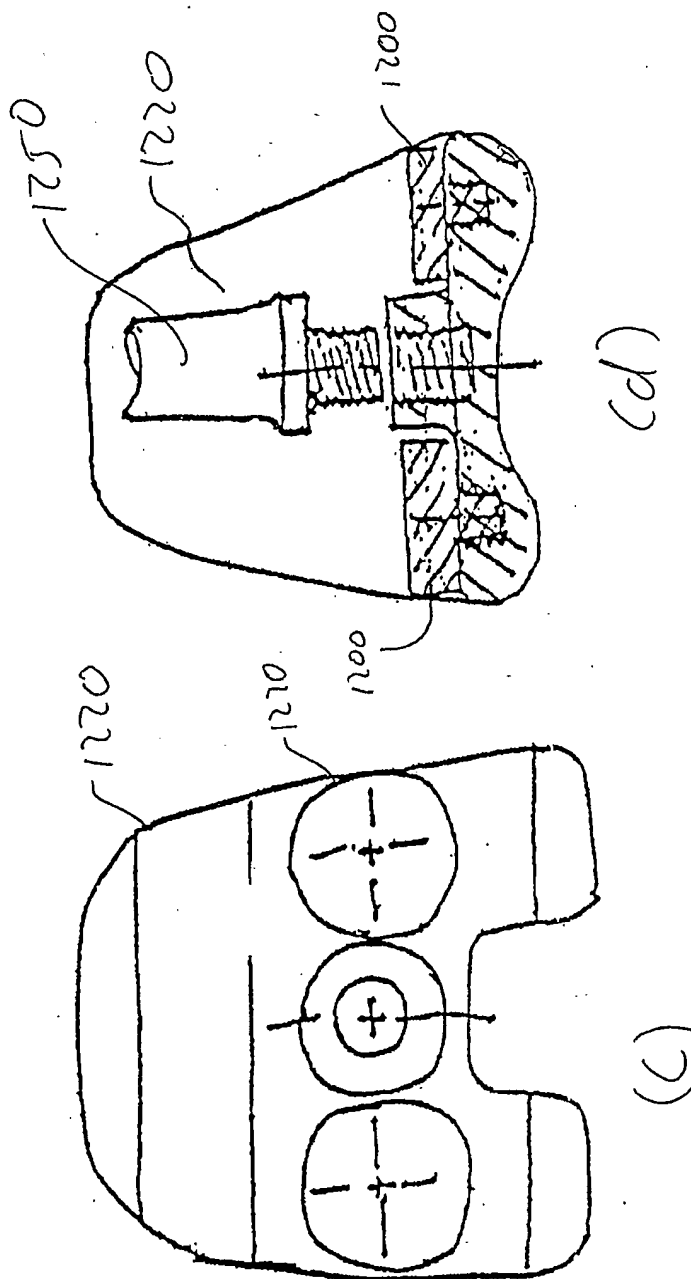


Fig. 21

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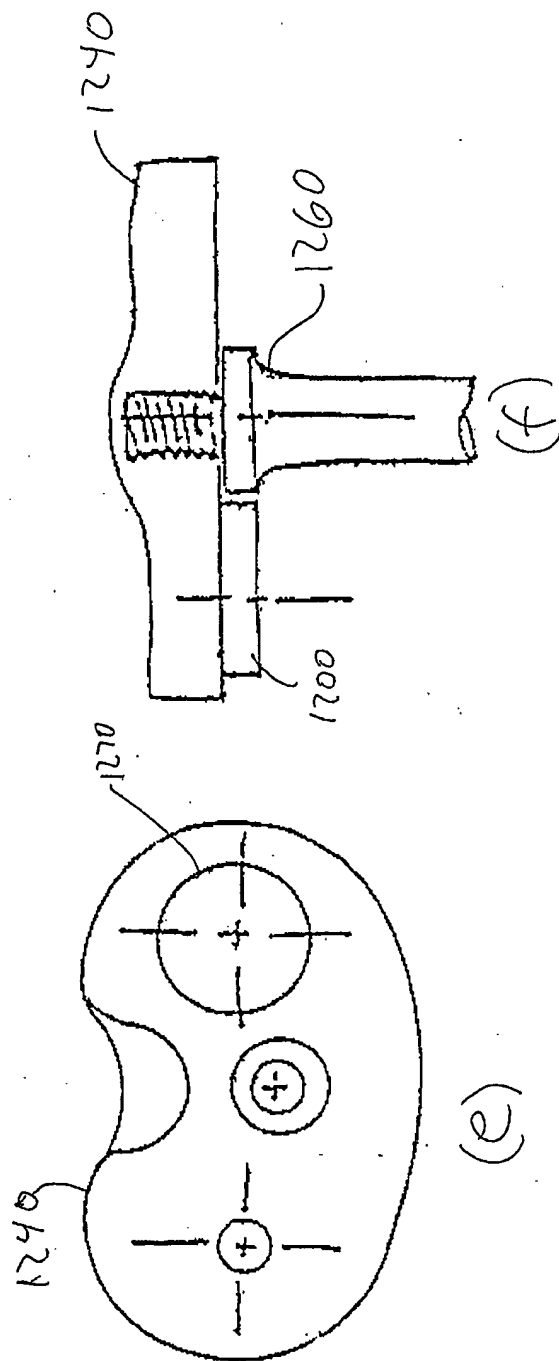
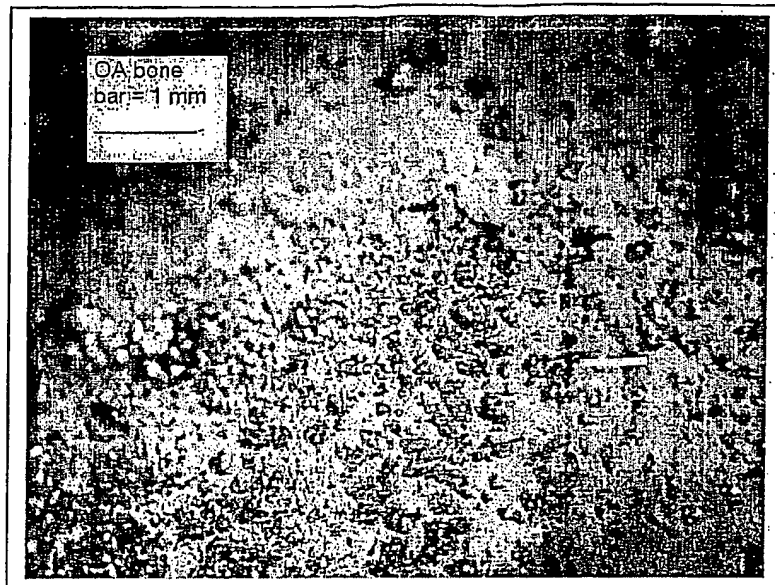


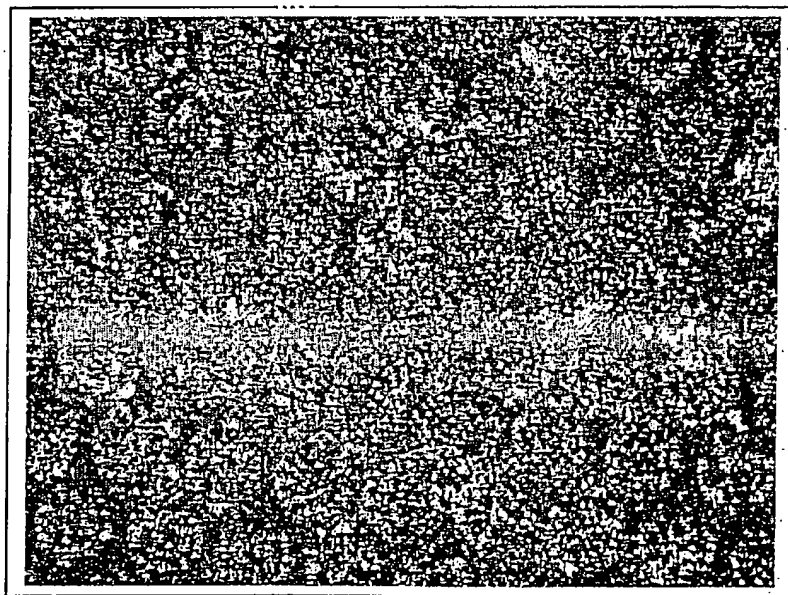
Fig. 21

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Optical micrographs comparing a typical surface of the eburnated bone

Fig. 22

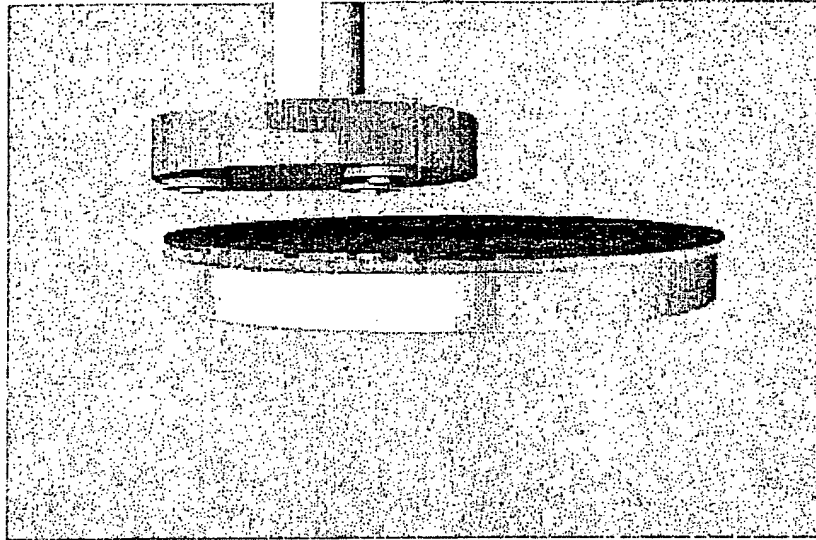


Abrasive surface used during Buehler testing. The islands of 70 micron diamond are 1 mm dia. (bar). Many of the pores on bone approach 1 mm but the average size is close to 0.2 mm

Fig. 23

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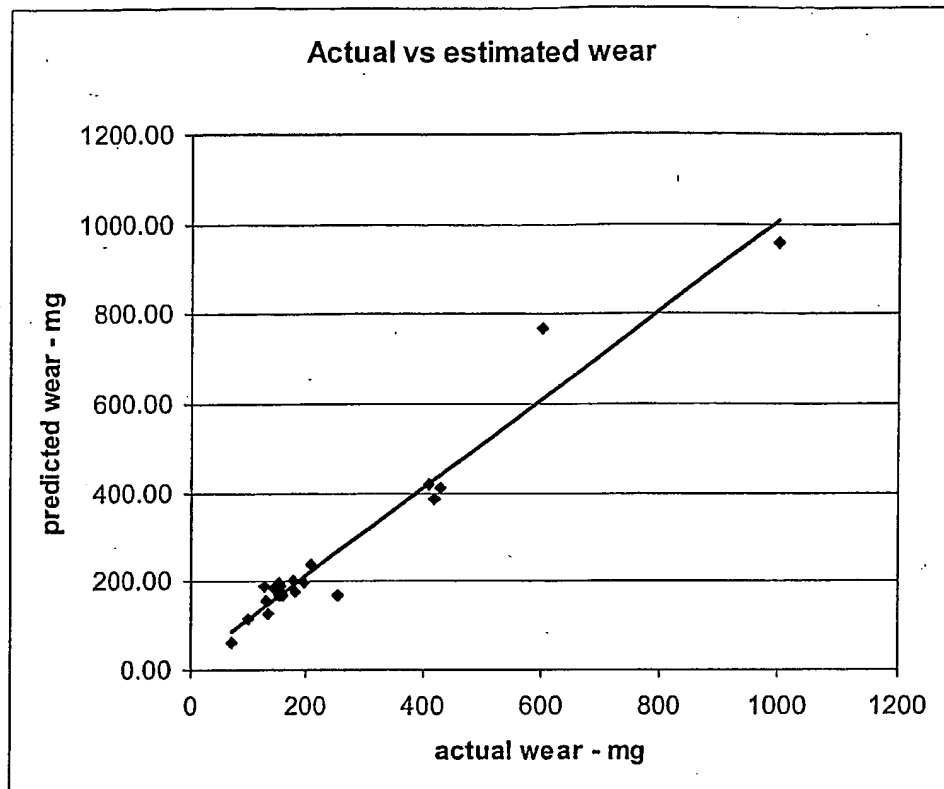
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Schematic of the Buehler test apparatus. Three specimens are held in the sample holder inserted in polyurethane cups. The diamond abrasive sheet is comprised of a polymer backing with an adhesive.

Fig. 24

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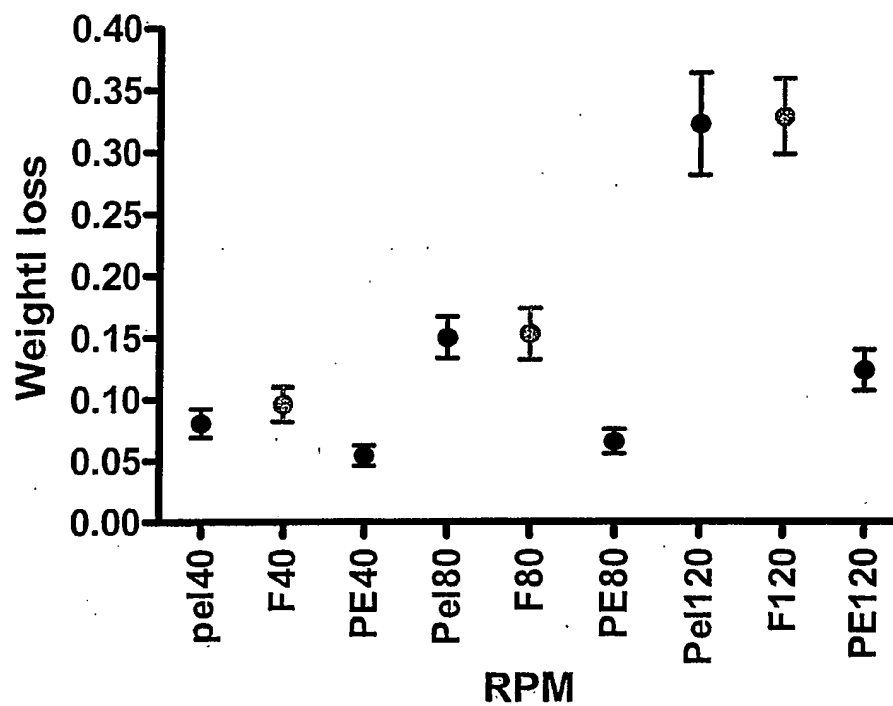


Plot of predicted wear vs actual wear from the Buehler test method. Wear testing of UHMWPE on the KMM using the implant model produces a wear of approximately 64 mg for 300,000 cycles. The parameters for the Buehler were adjusted so that this value was obtained in 20 min of testing. The complete test was 60 min in duration. Slope: 0.9891 ± 0.05215 , Goodness of Fit: $r^2=0.9523$

Fig. 25

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Grouping by RPM

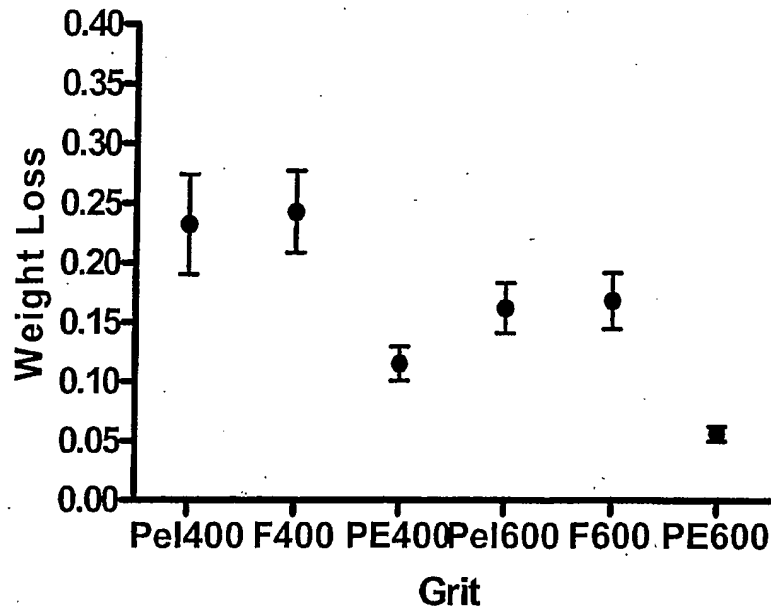


Wear rate as function of rotational speed of the platen, and left as function of abrasiveness. (left 600 grit SC paper.) PE120 = UHMWPE @120 rpm, Pel 80= Pellethane 80A@ 80rpm, etc.

Fig. 2,6

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Grouping by Grit

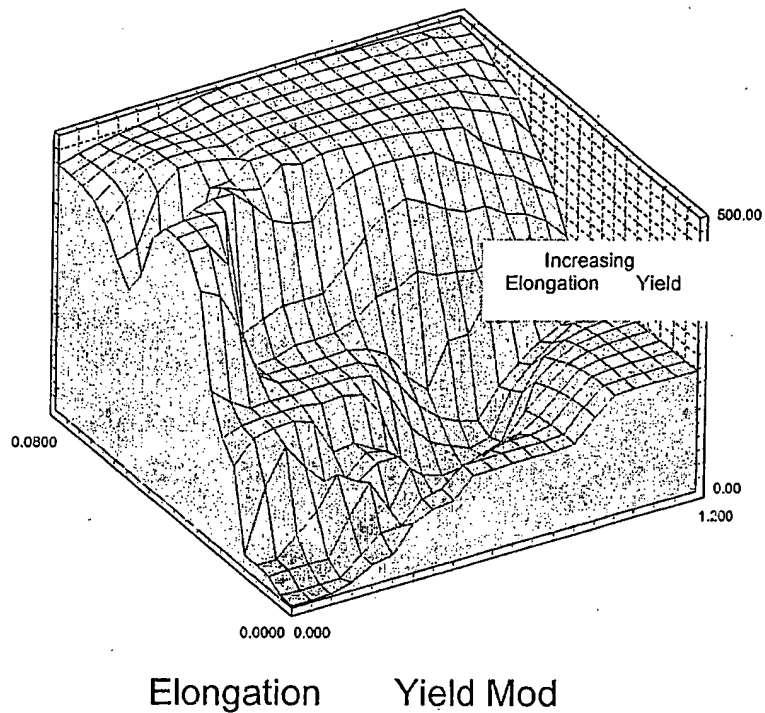


Same materials tested as a function of surface roughness using 400grit and 600 grit silicon carbide paper. For both tests, 20 min, 20 lbs, 80 rpm platen speed, $n > 12$. Wear was proportional to surface roughness; but not to speed when equal distance was accounted for.

Fig. 217

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Estimated Wear

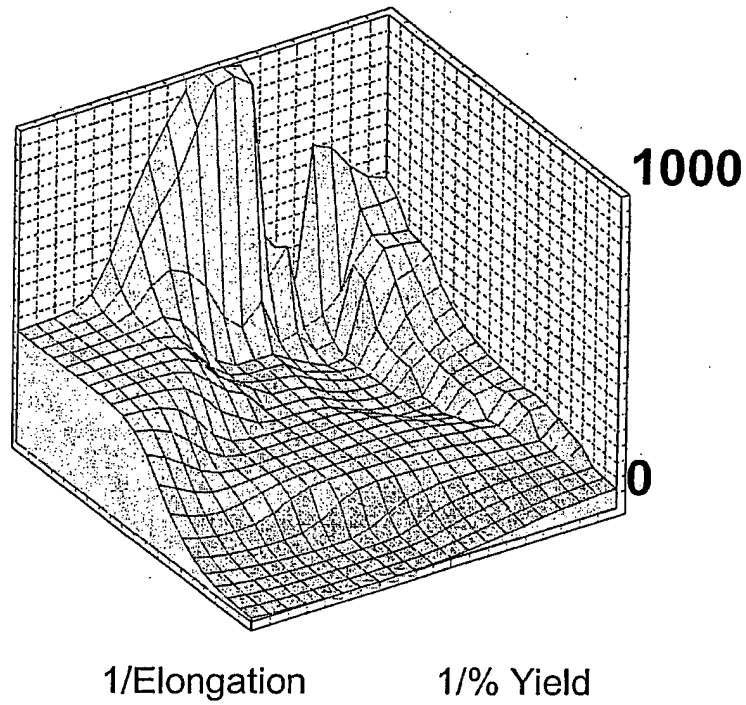


Surface plot of wear as a function of inverse elongation and modulus at yield left using constructed from the data in table 2 (strain at yield value between 2 and 20%).

Fig. 2.8

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Estimated Wear

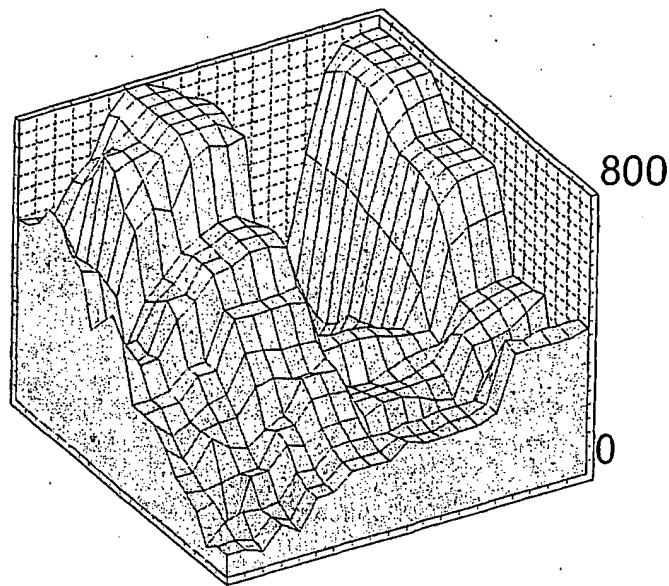


Wear as a function of inverse elongation and strain at yield (modulus at yield between 100 and 200 MPa.)

Fig. 2:9

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Estimated Wear



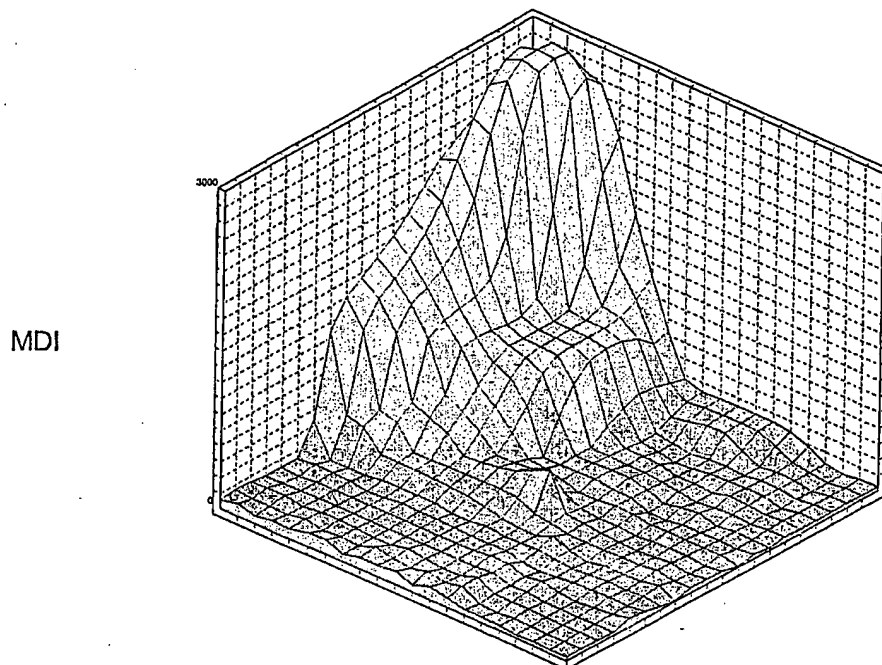
Increasing
Elongation and Yield

Theoretical wear from 600 data hypothetical data sets (values of y, e, s) for equation 1. Two of the three parameters are used for the plot: inverse elongation and inverse modulus at yield. Strain @ yield between 5 and 10 %, modulus at yield between 100 and 200 MPa and elongation between 100% and 400 percent.

Fig. 30

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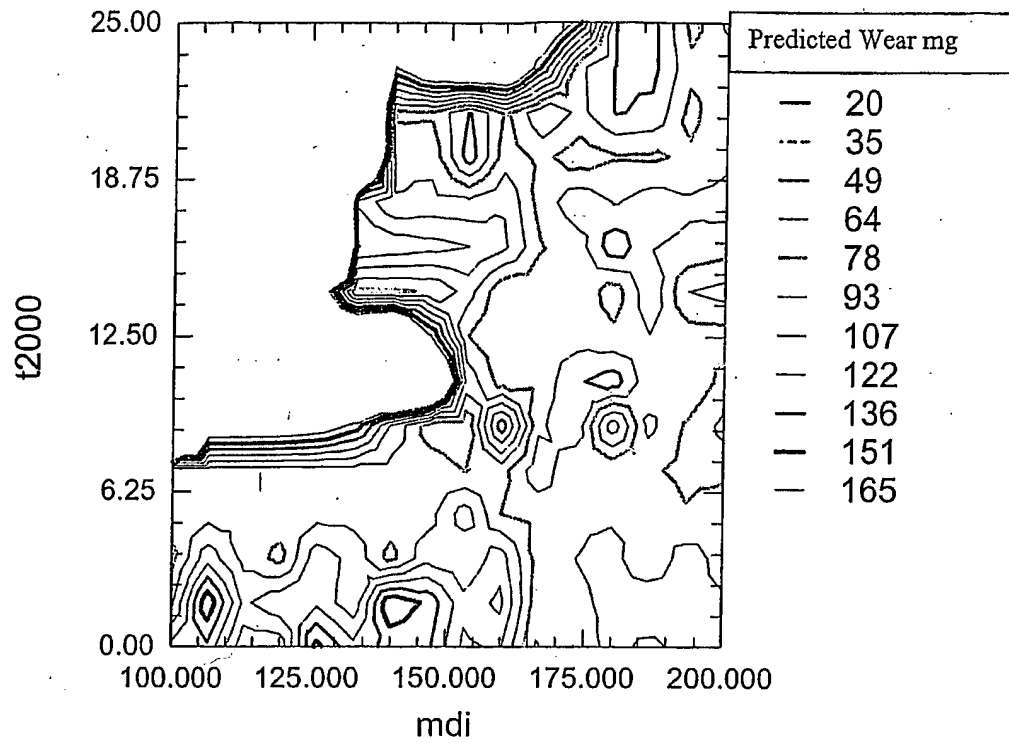
Predicted Wear



Plot of predicted wear as a function of MDI composition and T2000. The effects of T1000 are similar while plots of wear and variations of BDO or ratios are less informative since the ratios are nearly constant as noted above.

Fig. 311

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The contour above is the same data in the 3D graph.

Fig. 32